DWTF Permit Modification Table

Class 1 and Class 2 Permit Modifications (PRA03-080)

Item No.	Proposed Modification(s)	Rationale for Modification(s)	Document Changes	Classification of Modification(s)	LLNL Ref. No.
99-NC-006 Mod 8-1	Modify text in Volume 1, Part IV, Section 5.3.2 to reflect change in Solidification Unit ventilation system.	This modification is a text change to specify that there is no enclosure used with this system. Container level 3 controls may be provided by either venting through a closed-vent system to a control device or venting to an enclosure that then exhausts to a closed vent system. Waste Management has decided to vent directly through a closed-vent system to a control device. In this case, alternate method of waste management would be used.	Volume 1, Part IV, Section 5.3.2 - Paragraph will be changed to "When treating waste regulated by the CC Rule, the Solidification Unit with its associated container are vented through a closed-vent system to a control device. The control device is a carbon adsorption system. This closed vent system and carbon adsorption system associated with the container level 3 controls per subpart CC are designed and operated as described below."	Lawrence Livermore National Laboratory (LLNL) requests that this modification be reviewed as a Class 1. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section A.1, Administrative and informational changes.	61
99-NC-006 Mod 8-2	Add Radioactive and Hazardous Waste Management (RHWM) technicians to the group of employees who can prepare treatment plans.	The RHWM technicians usually have more experience in chemical use and safety than the chemists or process engineers. This change will not reduce the safety of the treatment plans.	Volume 1, Part VI, Section 2.4.6 - change from "The sequence and rate of chemical additions is specified in the treatment plans that are prepared by the RHWM Division process engineer and/or chemist." to "The sequence of	LLNL requests that this modification be reviewed as a Class 1. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section A.1, Administrative and	24

			chemical additions is specified in the treatment plans that are prepared by RHWM Division process engineers, chemists, and technicians."	informational changes.	
99-NC-006 Mod 8-3	Replace the term "compressed air condenser in the Gas Adsorption System (GAS)" by "a positive displacement blower."	This change is needed to correct inaccurate language. The GAS unit was designed to move air using a fan or pump. The air mover originally selected was and remains a positive displacement blower. Reference to a compressed air condenser was included in the operation plan by error.	Volume 11, Part XIV.4, Section 3.3.7.5 - change text from "Referred to as GAS, it includes a scrubber, compressed air condenser..." to "Referred to as GAS, it includes a scrubber, positive displacement blower..."	LLNL requests that this modification be reviewed as a Class 1. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section A.1, Administrative and informational changes.	43
99-NC-006 Mod 8-4	Make the following clarifications regarding the glove boxes: a). There are three gloveboxes in the small scale treatment laboratory instead of two; b). Modify text in Volume 11, Part XIV.4, Section 3.3.7.9 to more accurately describe the containment and ventilation controls for the glove boxes located in the small scale treat unit;	This is a point of clarification. The intention was always to have three glove boxes. It clarifies how the containment and ventilation controls associated with the glove boxes work.	Volume 11, Part XIV.4, Section 3.3.7.9 - change title from "Inert Atmosphere/ Radioisotope Glove Box and Combination Hazards Glove Box." to "Inert Atmosphere Glove Box, Radioisotope Glove Box, and Combination Hazards Glove Box."	LLNL requests that this modification be reviewed as a Class 1. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Sections A.1 and A.2, Administrative and informational changes and correction of typographical errors.	45, 46, 47

	c). Update the design description of the gloveboxes.	Provides a better design description of the gloveboxes.	Replace the entire text in Volume 11, Part XIV.4, Section 3.3.7.9 as shown in **Attachment 1**.		
99-NC-006 Mod 8-5	Modify Part B Permit text in Volume 11, Part XIV.4 Appendix XIV.4D; Page D-3 and replace Subpart CC by Subpart AA.	This is a change to correct typographical errors.	Add the following statement to Volume 11, Part XIV.4 Appendix XIV.4D – Add the following: "In order to comply with the requirements of 22 CCR 66264, Article 27 and 40 CFR 264, Subpart AA, off-gases and agitation air from the Waste Blending Station will be vented to the GAS when required (e.g., when concentration of organics in the waste exceeds 10 ppm by weight).	LLNL requests that this modification be reviewed as a Class 1. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section A.2, correction of typographical errors.	79

DWTF Permit Modification Table

Class 1 and Class 2 Permit Modifications (PRA03-080)

99-NC-006 Mod 8-6	Change "uranium bleaching" to "uranium deactivation."	To correct typographical error; uranium deactivation describes this process more accurately.	Volume 11, Figure XIV.4.3, Appendix XIV.4-L, Sections I to IV and Figure 2 - change from "uranium bleaching" to "uranium deactivation."	LLNL requests that this modification be reviewed as a Class 1. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section A.2, Correction of typographical errors	15
99-NC-006 Mod 8-7	Change the design specific gravity for the waste from 1.02 to 1.20.	The current figure of 1.02 for design specific gravity for the Decontamination and Waste Treatment Facility (DWTF) Tank Farm waste included in Part B is inaccurate. LLNL proposes to correct this typographical error by replacing the current specific gravity of 1.02 by a relative density value of 1.20. The tanks in the DWTF Tank Farm are designed for densities even greater than 1.20 and this value far exceeds actual specific gravities of wastes historically treated.	Volume 11, Part XIV.4, Section 6.8.1.	LLNL requests that this modification be reviewed as a Class 1 based on 22 CCR, Chapter 20, Appendix I, Section A.2, Correction of typographical errors.	17

DWTF Permit Modification Table

Class 1 and Class 2 Permit Modifications (PRA03-080)

99-NC-006 Mod 8-8	Reword a specific sentence in Part B to clarify the locations of the vacuum breaks associated with the Tank Farm.	Current language in Part B incorrectly describes the locations of the vacuum breaks as residing on the off-gas system instead of their actual locations, which is on each treatment tank.	Volume 11, Part XIV.4, Section 3.3.8	LLNL requests that this modification be reviewed as a Class 1 based on 22 CCR, Chapter 20, Appendix I, Section A.2, Correction of typographical errors.	19
99-NC-006 Mod 8-9	Modify the text in Volume 11, Appendix XIV.4-I, Debris Washer Process Description to provide better description of the debris Washer.	Provides a better design description of the Debris Washer and includes figures of Debris-washing box and lid as well as a Process Flow Schematic. See **Attachment 6**.	Volume 11, Appendix XIV.4-I – replace Sections I through IV by new text as shown in **Attachment 6.**	LLNL requests that this modification be reviewed as a Class 1. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Sections A.1 and A.2, Administrative and informational changes and correction of typographical errors.	35
99-NC-006 Mod 8-10	Delete references to density sensor from the DWTF Tank Farm.	The sensors currently used in the DWTF Tank Farm ensure that the density of the liquid inside the tank does not exceed the design specific gravity of 1.20. Since the tanks are designed for densities greater than 1.20, and since the specific gravity of 1.20 far exceeds the actual specific gravity of wastes historically treated, the density sensors are not needed.	Volume 11, Part XIV.4, Sections 6.1.1 and 6.8.1. Appendix XIV.4-C, Section 3.4.5.	LLNL requests that this modification be reviewed as a Class 1. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section A.1, Administrative and informational	16

		RHWM will use specific information provided on the Waste Disposal Requisition form to determine the specific gravity of the liquid in the tanks.		changes.	
99-NC-006 Mod 8-11	Modify the ventilation system for the DWTF so that the emissions from the Solidification Unit, Waste Blending Station, Cold Vapor Evaporator, Centrifuge, and hazardous waste gases will not be routed through a VOC scrubber. These emissions are managed as follows: 1. Emissions from the Solidification Unit are routed through the Pollution Off-Gas System (POGS); 2. Emissions from the Waste Blending Station and Cold Vapor Evaporator, Centrifuge and hazardous waste gases are routed through the GAS; 3. Methanol emissions from the treatment tanks are routed through the Methanol Scrubber, located immediately after the Tank Farm. Methanol scrubber uses tap water	It is operationally necessary to modify the DWTF ventilation system to ensure its efficient operation. The emissions from the Waste Blending Station, Cold Vapor Evaporator, Centrifuge, and hazardous waste gases will go through the Gas Adsorption System (GAS), which includes carbon columns, but not be routed through the VOC scrubber. Emissions from the Solidification Unit are routed through the VOC scrubber located inside the POGS. The GAS has a scrubber that will remove methanol from the air exhaust of these units. Methanol Scrubber, located immediately after the Tank Farm is more efficient at removing methanol and will be used for this purpose.	The text changes for this modification (elimination of the VOC scrubber) are shown in Ventilation text changes in the Part B, Volume, 11, Part XIV.4, Sections 3.3.6, 3.3.7.5, and 3.3.7.7. In addition, Figure XIV.4-3 will be modified to show this change.	LLNL requests that this modification be reviewed as a Class 2. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section G.2, Modification of a tank unit or secondary containment system without increasing the capacity of the unit.	34, 40

	to extract methanol.				
99-NC-006 Mod 8-12	Specify that there is no piping available to route the emissions from the Debris Washer through the VOC scrubber. The emissions will enter the POGS directly.	Off-gases from Debris Washer will enter the POGS directly because it is more efficient. The volatility of methanol and the relatively large surface area of debris result in insignificant amounts of methanol remaining on the debris at the point of treatment. It is not necessary to route off gas from the Debris Washer because methanol is highly volatile and will dissipate from the debris.	Volume 11, Part XIV.4, Section 3.3.7.2 - text has been changed to reflect this change. Volume 11, Part XIV.4, Figure XIV.4-3 will also be changed to show the elimination of the piping arrangement connecting the Debris Washer to the VOC scrubber.	LLNL requests that this modification be reviewed as a Class 2. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section A. 4.b, Other changes.	35
99-NC-006 Mod 8-13	Move the Solidification Unit into the Debris Washer Room and route the emissions from the Solidification Unit through POGS when necessary to maintain compliance with the Resource Conservation and Recovery Act (RCRA) CC rule.	This equipment was moved so that it can be operated in an enclosed room. This provides a safer work environment because it separates the solidification process from other processes conducted concurrently in the LWPA. Installing the Solidification Unit in this room places it in closer proximity to both power source & the POGS.	Volume 11, Part XIV.4, "Figure XIV.4-2 has been modified to show the change in location of the Solidification Unit. See changes in Volume 11, Part XIV.4-3.3.7.7 and in Figure XIV.4-3.	LLNL requests that this modification be reviewed as a Class 2. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section G.2, Modification of a tank unit or secondary containment system without increasing the capacity of the unit.	58, 62
99-NC-006 Mod 8-14	Remove repositionable hood from the Solidification Unit. A shroud will be positioned over the solidification	Emissions were originally intended to go through a repositionable hood located at the opening of the mixer that could route volatile organic	Add the following text to Volume 11, Section 3.3.7.7: "LLNL will achieve Container Level 3 controls by	LLNL requests that this modification be reviewed as a Class 2. This change most closely fits the	36, 56, 60

	unit when necessary to direct emissions through a closed vent system to the POGS.	compounds (VOCs) to the POGS. The repositionable hood has been eliminated from the system. Container level 3 controls may be achieved either by venting through a closed-vent system (such as a hood) to a control device or venting to an enclosure (such as the proposed shroud), which then exhausts to a closed vent system. RHWM has decided to route the Solidification Unit's emissions directly through a closed-vent system to the control device, which is the POGS. The POGS includes an acid scrubber, high-efficiency particulate air (HEPA) filtration and two carbon columns in series. The purpose of the hood was for dust management and not for VOCs capture. The proposed configuration is superior to the repositionable hood because off gas emitted during mixing is completely contained in the headspace of the drum and ducted to the POGS without the possibility of escaping into the workplace.	venting through a closed-vent system (such as a hood) to a control device or venting to an enclosure (such as the proposed shroud), which then exhausts to a closed vent system. RHWM personnel will route the emissions from Solidification Unit directly through a closed-vent system to the control device, the POGS. The POGS includes an acid scrubber, HEPA filtration and two carbon columns in series. This configuration is superior because off gas emitted during mixing is completely contained in the headspace of the drum and ducted to the POGS without the possibility of escaping into the workplace." Volume 11, Appendix XIV.4-J, Figure 1 has been modified to	description of a modification based on 22 CCR, Chapter 20, Appendix I, Section G.2, Modification of a tank unit or secondary containment system without increasing the capacity of the unit.	

			show that there is no repositionable hood. See **Attachment 7**.		
99-NC-006 Mod 8-15	Cement dust will not be abated through a repositionable hood to a local, high-volume ventilation duct.	Originally, emissions from the Solidification Unit were to be drawn through a high volume ventilation duct to remove cement dust. The cement dust is non-hazardous and LLNL Chemical Engineers and Industrial Hygienists have determined that abatement of cement dust is not required. Cement dust will be managed through housekeeping measures and, if necessary, personnel in the area will wear personal protective equipment to prevent the inhalation of cement dust.	As shown in Volume 11, Section 3.3.7.7 the text that references the high-volume ventilation duct previously planned for cement dust abatement will be deleted. Text will show cement dust is managed administratively. Also, Volume 11, Part XIV.4, Appendix XIV.4-J, Section 1.2 text will be modified to eliminate reference to abatement of cement dust.	LLNL requests that this modification be reviewed as a Class 2. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section G.2, Modification of a tank unit or secondary containment system without increasing the capacity of the unit.	57, 59, 60
99-NC-006 Mod 8-16	The transfer pumps and control valves for the chemical feed system will not have an automatic system to allow operations of only one pump at a time. LLNL will use administrative controls to allow operation of only one pump at a time.	The automatic feed system will not be necessary because LLNL can effectively operate only one pump at a time through administrative controls.	Volume 1, Part VI, Section 2.4.6 - delete and replace the last bulleted sentence on this page with the following: "The sequence of chemical addition is specified in the treatment plans that are prepared by RHWM Division process engineers, chemists, and technicians."	LLNL requests that this modification be reviewed as a Class 2. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section A.4.b, Other changes.	23, 25

99-NC-006 Mod 8-17	This proposed modification refers to the scrubber solution in the POGS. A pH sensor continuously monitors the pH value in the sump and sends a signal to the NaOH feed pump to maintain pH. A specified pH range is not warranted and will be removed.	It is not operationally necessary or possible to maintain such a narrow pH range for this process. Higher pH ranges result in better removal efficiency for simple acid gases. Removal of amines requires acidic pH values. LLNL has determined that it is safer to allow the pH to be varied depending on the treatment process being conducted. This increase in pH range will not degrade or damage existing equipment. The process engineer will determine the required pH prior to conducting a specific treatment.	Volume 11, Part XIV.4, Section 3.3.3, Replace the text on pH sensor by "A pH sensor continuously monitors the pH value in the sump and sends a signal to the programmable logic controller (PLC) panel and operates the lead NaOH feed pump to maintain pH for efficient scrubbing."	LLNL requests that this modification be reviewed as a Class 2. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section A.4.b, Other changes.	32
99-NC-006 Mod 8-18	Remove PLC automatic pump shut off and alarm feature for pH control and temperature control during blending and/or feeding chemical reagents.	In order to improve operational efficiency and treatment effectiveness, LLNL has determined that in many instances the processing plan calls for the pH to be lowered below 2 or raised above 12.5. For example, cyanide-bearing wastes should be kept above a pH of 13 for safe handling, and wax water should be kept below a pH of 2 or there is an increased chance of clogging lines and/or pumps. There is also the potential for the temperature to increase 20°C or more over several hours. LLNL	Volume 11, Part XIV.4 Appendix XIV.4D - change text from "If the pH reading rises above 12.5 or drops below 2 or if the temperature increases by more than 20°C when blending or feeding chemical reagents, the PLC automatically shuts off the appropriate pump(s) and activates a warning alarm." to "Operators will take	LLNL requests that this modification be reviewed as a Class 2. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section A.4.b, Other changes.	80

		has observed 30°C increases when oxidizing cyanide with hypochlorite. Administrative controls are in place since all blending must have an authorized processing plan before work begins. RHWM will include pH ranges for each plan. This is a continuously monitored process. At least one technician will be present at all times and the PLC will be running when using this unit.	the appropriate corrective actions (e.g., terminating chemical reagent additions) if a sharp pH or temperature fluctuation is observed."		
99-NC-006 Mod 8-19	Remove the control panel timer and correct applicable sections of Part B Permit. Specify that treatment will be considered complete when the endpoint has been reached based on various properties such as pH, temperature, and oxidation -reduction potential (ORP).	The only flow measurement will be from the large waste pump and will be used to verify how much waste is being added to the portable blending containers. For waste being fed into the blending tank, a level indicator is used to determine how much waste has been pumped into the tank and therefore a flow measurement would be redundant. As for the reagent addition, actual amounts of reagents required for a treatment are most likely not included on a blending plan because these values are not known. Waste streams are significantly different from one waste to another and it is much safer to rely on the endpoint characteristics of a treatment (e.g., pH, temperature, ORP)	Delete references to the control panel timer and add the following text to Volume 11, Part XIV.4, Appendix XIV.4D, Section II.2: "Flow measurement will be taken from the large waste pump and will be used to verify how much waste is being added to the portable blending containers. For waste being fed into the blending tank, a level indicator is used to determine how much waste has been pumped into the tank and therefore a flow measurement is not needed as it would be	LLNL requests that this modification be reviewed as a Class 2. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section A.4.b, Other changes.	82

		than it is to rely on how much reagent has been added. A treatment should not be stopped and deemed complete if a predetermined amount of reagent has been added. A treatment should be deemed complete when the endpoint has been reached based on various properties.	redundant. Actual amounts of reagents expected to be required for a treatment will not be included on a blending plan because these values are not known. Waste streams are significantly different from one another and it is much safer to rely on the endpoint characteristics of a treatment (e.g., pH, temperature, ORP) than it is to rely on how much reagent has been added. A treatment should not be stopped and deemed complete if a predetermined amount of reagent has been added. A treatment should be deemed complete when the endpoint has been reached based on various properties (e.g., pH)."		

99-NC-006 Mod 8-20	The blending station was built with a 1-in. Chlorinated Polyvinyl Chloride (CPVC) waste transfer line for the small diaphragm pump instead of using 1/2-in. diameter, Series 300 stainless-steel tubing and fittings steel.	The lines were changed to provide for safety. The CPVC line is more resistant to dilute hydrochloric acid waste streams, which make up a significant portion of the waste we handle. Reference "*Corrosion Resistance Tables*," 2nd edition; by Philip Schweitzer; Marcel Dekker, Inc., New York, 1986; pp. 546-547.	Volume 11, Appendix XIV.4-D, Section III.3.	LLNL requests that this modification be reviewed as a Class 2. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, B.1.d, Other changes.	83
99-NC-006 Mod 8-21	Add a portable In-Situ Stabilization and Filter Encapsulation (IS SAFE) Unit as an additional treatment process in the Reactive Materials Cell (RMC) located in Room 1025 and in the Debris Washer Room (DWR) located in Room 1036. Operating the Unit in these two areas will be safer because RMC is an isolated and well-ventilated room and DWR is located within the double air-locked area.	Addition of a portable IS SAFE Unit to serve Rooms 1025 and 1036 will provide safer working environment for this operation. Recently several buildings at LLNL have required HEPA filter replacements, which have generated a substantial number of HEPA filter wastes contaminated with hazardous and/or radioactive components. The HEPA filters contain components that restrict them from land disposal. A treatment process called In Situ Stabilization and Filter Encapsulation has been shown to treat HEPA filters so that they can be safely managed at an offsite disposal facility. The process code for solidification (T39) is already included in the Part A for the Solidification Unit in Building 695. A HEPA filter waste form code will be added to	Volume, 11/Part XIV.4, Sect. 3.3.7.2 Volume, 11, Part XIV.4, Sect. 3.3.7.3 Volume, 11, Part XIV.4, Sect. 3.3.7.7.	LLNL requests that this modification be reviewed as a Class 2. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, A.4.b, Other changes.	84

		the two locations in B695 (Rooms 1025 and 1036) where the portable IS SAFE Unit will be operated. Displacement of secondary containment in these two rooms will not be an issue because the reservoir used to hold the resin, and the portable IS SAFE Unit are elevated on stands which will not occupy floor space.			
99-NC-006 Mod 8-22	Move the Chopper and Shredder Units into an appropriate storage area while Rooms 1038 and 1039 are being used to process radioactive materials with a potential to disperse. These two rooms, located within the double air-locked area, will provide a safe place to conduct such work.	The shredder and chopper will be moved to a storage area within DWTF. They will be stored in that area and not operated. They will only be operated in rooms 1038 and 1039. These rooms may have to be decontaminated prior to bringing the chopper and shredder back because of the possible contamination from the dispersion potential of the HEPA encapsulation process.	Volume, 11/Part XIV.4, Sect. 3.3.7.6 Volume, 11/Part XIV.4, Sect. 7.	LLNL requests that this modification be reviewed as a Class 2. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, B.1.d, Other changes.	86
99-NC-006 Mod 8-23	Remove electronic leak detection systems from the trenches in Building 695.	RHWM will incorporate administrative controls instead of engineering controls. RHWM personnel will routinely inspect each trench on a daily basis (including weekends) to ensure that any leaks are identified.	Volume 1, Part IV, Section 4.3.	LLNL requests that this modification be reviewed as a Class 2. This change most closely fits the description of a modification based on 22 CCR, Chapter 20, Appendix I, Section A.4.b Other changes.	21